Table 6. Commercial Steamboat Wrecks Reported In The Project Area.

Name	Source*	Tons	Place	Date	Cause	Lives Lost
Albany	C		Twelvemile Bayou	1878	Struck by raft	0
Cotton Plant	A	122	Twelvemile Bayou	5/29/1845	Hit bank	5
Jim Gilmer	A	115	Soda Lake	3/13/1851	Snagged	2
Joseph Holden	A	222	Twelvemile Bayou	4/07/1859	Snagged	0
Juberquit	B		Soda Lake			
L. Dillard	A	56	Soda Lake	1/31/1867	Snagged	0
Lessie B.	C		Cypress Bayou	3/21/1882	Fire in cotton	0
Lizzie Lee	A	101	Twelvemile Bayou	1/13/1857	Snagged	0
Marion	A	133	Soda Lake	1/07/1859	Snagged	0
Mittie Stephens	A	224	Caddo Lake	2/11/1869	Fire in hay	many
Osage	D	331	Soda Lake		Sank	
Seven Up	D		Twelvemile Bayou		Sank	
Texas	B		Soda Lake			

*Sources: A. Lytle - Holdcamper List (Mitchell 1975) and Supp. No. 3.
B. Annual Report of the Chief of Engineers, 1884, p. 1430.
C. WPA (1938).
D. Norman (1942).

obviously real wrecks because-they were identified in the process of removal. The *Albany* and *Lessie* are reliable because the information was derived from the U. S. Customs Service for the Port of New Orleans. However, it is surprising that the *Lessie* B, which caught fire 15 miles below Jefferson, is not mentioned in the Corps' annual reports concerning improvements to Cypress Bayou. Since project work was suspended in 1880 and did not resume until 1884, it appears that the wreck was quickly removed by its owners. If it had been in place in 1884, it would have been cited as a navigation hazard and removed as part of the ongoing work effort.

Of the listed wrecks, it is probable that most were not part of the Jefferson trade, but rather were on the western route around the raft, which duplicated the Jefferson route through Soda Lake. This was definitely the case with the *Cotton Plant,* which was an upriver packet. The only vessels that definitely were going towards or away from Jefferson were the *Albany* (which was moving from Shreveport *to* Albany), the *Lessie B.* (which was moving from Jefferson to Shreveport), and the *Mittie Stephens* (which was moving from Shreveport to Jefferson).

Whatever their destination, the distribution of these wrecks along the route west of Shreveport shows the relative difficulty in navigating various portions of the route to Jefferson. Contrary to popular conceptions, the portion of the route from the foot of Caddo Lake to Jefferson seems to have been extremely safe. Only two steamboats *(Mittie Stephens* and *Lessie* B.) were wrecked along this portion of the route, and both were by fire rather than by snags or other navigation hazards. This is compatible with what is known about the physical aspects of the route through Caddo Lake and Cypress Bayou.

The remaining 11 wrecks are nearly evenly split between Soda Lake and Twelvemile Bayou. The Soda Lake wrecks would probably have occurred in the shallow area beginning at Albany. The causes of the loss of the *Texas* and *Juberquit* are unknown. The *Osage is* said to have sunk, and the *Jim Gilmer, Marion,* and *L. Dillard* were snagged.

Of the five Twelvemile Bayou wrecks, the Seven Up is said to have sunk, but the location is not known. The Albany is said to have wrecked at Griffen Place as the result of being struck by a raft floating downstream. The *Joseph Holden* and *Lizzie Lee* were snagged, and the *Cotton Plant* hit a bank Their locations arc shown on Jacobs' 1935 map (Figure 23). In contrast to Cypress Bayou, Twelvemile Bayou was dangerous for steamboats.

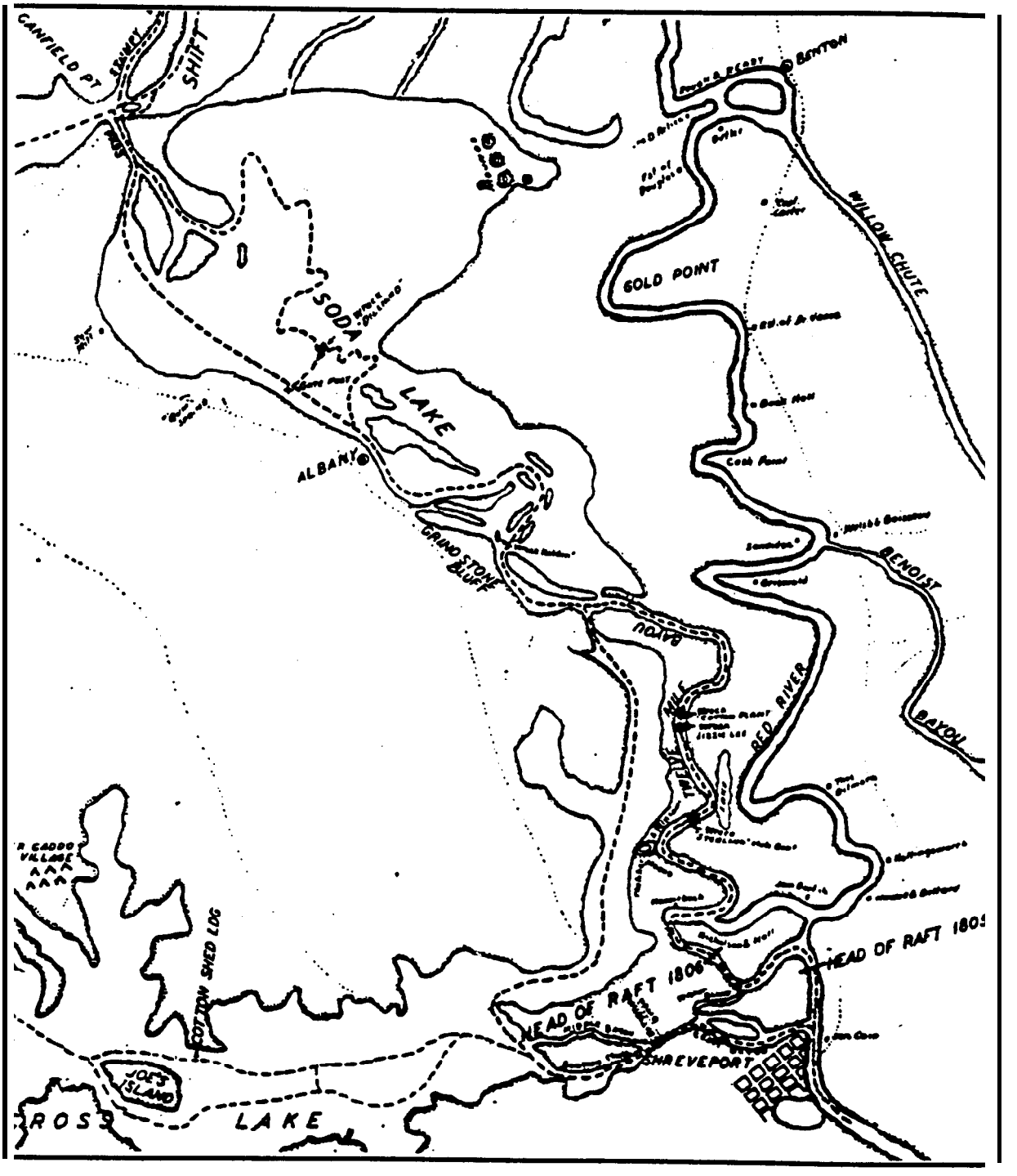


Figure 23. Distribution of wrecks along Twelvemile Bayou rod in Soda Lake according to Jacobs, who does not identify his sources (Jacobs 1935).

This is compatible with what is known about the physical features of the latter *stream.* It should be noted that these wrecks were not on present-day Twelyemile Bayou, which is essentially an open, dredged drainage ditch. The three Twelvemile Bayou wrecks shown on Jacobs' map are all off the present channel on the old channel of Twelvemile Bayou, which was convoluted, swift, and treacherous, as can be seen by Way's account of the demise of the *Cotton Plant:*

> In the spring of 1845 she tool: a load of government supplies from New Orleans to Fort Towson, upper Red River, unloaded them, and in resuming hit the bank in narrow 12-Mile Bayou with disastrous consequences. Ha head stuck in the mud, she rounded broadside, and the stern caught on the opposite shore. She listed and filled and the cabin floated off. Five were drowned. A search was made rata, after the river fell, for the hull, boilers and machinery, to no avail Several years later the *New Latoniz* was upbound in the Bayou and the pilot was confronted with a steamboat hull coming toward him, boilers and engines intact, rolling over and ova. He prudently landed under a false point, sucked in his breath, and the wreckage passed by without hitting him. It was the missing romaine of the *Cotton Plant. [Way* 1983].

Of the eleven nonquetinonquestionable wrecks (i.e., leaving out the *Osage* and *Seven Up),* only one, the *Mittie Stephens,* has been located. It can be assumed that the *Lessie B.* was removed by *its* owner. The *Lizzie Lee, Marion, Texas,* and *Juberquit* were removed by the Corps in 1894. All upper parts of these wrecks were destroyed, and only the floor timbers and bottom planking were left, since they did not constitute a hazard to navigation. An 1899 Corps report indicates that parts of the three-remaining wrecks in Twelvemile Bayou (i.e., *Albany, Joseph Holden,* and *Cotton Plant)* were destroyed with explosives.

That leaves the Jim *Gilmer* and the *L. Dillard* as possibly remaining. Way (1983) reports (apparently on the basis of a newspaper account) that the *New Latonia* went to retrieve 800 bales of cotton from the Jim *Gilmer* and narrowly missed the remains of the *Cotton* Plant. The wreck of the *L. Dillard is* shown on many maps (including Hardee's 1871 map of Louisiana and Jacobs' 1935 map) as being just to the north of the Gate Posts on the low-water channel around Albany Flats. It is surprising that the wreck of the Jim *Gilmer is* not included on any of these maps, unless it had been removed If there are remnants of either of these vessels, they would be in agricultural fields adjacent to present-day Twelvemile Bayou rather than in the channel.

Steamboat Commerce in the Project Area

When the first steamboat reached Jefferson in 1845, the city was positioned for growth As the head of navigation, its market area encompassed the whole of northeast Texas, as far west as Dallas. Edward Smith, the Englishman in search of a site for a colony, describes the towns of the area in 1847, when Jefferson had 60 houses, several large stores, a warehouse, ant a mill:

> The chief towns are with few exceptions, unimportant places, from the very limited period which has clapsed since their foundation....Dangerfield is a very small place, but it is salt to be rapidly rising. They have just determined to fount a college there. Tarrant consists of twelve to fifteen houses congregated on a very large prairie, from which there is no line of separation. Clarkesville is said to be the most flourishing town in N.E. Texas, containing, probably three hundred families. Paris and Bonham are of fair size, with two-hundred-and-fiftthreey or three hundred inhabitants each. The court house is built of brick, but the other houses are neatly constructed of pine boards. McKinneyj was founded but a year or two ago, ant is small. Dallas is a rising town, well situated for commerce, on a tongue of lent on the very banks of the Trinity. On our return route we passed through no country town, except Marshall, the most flourishing place through which we travelled. An iron casting furnace, two saw mills, and other useful works, with

several large hotels, ant many stores, testify that and wealth abound amongst the people.

Jefferson served as a commercial center in two respects: 1) *it* was the point of embarkation for people moving west and the supply center for people located in northeast Tesas; and 2) it was the conduit for goods moving from the area, the most important of which was cotton, which was transported *to* Jefferson by wagons employing teams of oxen. Imports for distribution *to* the west and exports were both carried by steamboat. The commercial orientation of all of the ports and landings from Shreveport up to Jefferson was toward New Orleans, which was a point of embarkation for people moving north and west, a commodity supply center, and the place where the Cotton Exchange was located

Since Jefferson was not incorporated when the 1850 census was taken, its population for that year is not known. During the 1850s, Jefferson did not grow as fast as most of the incorporated towns in Texas. In 1860, it had a population 988, including 266 Blacks. It rose to 4,190 in 1870 (including 1,825 Blacks), enabling Jefferson to mow from fourteenth among Texas towns in 1860 to. sixth in 1870. Only Galveston surpassed Jefferson in commerce and industry in 1870.

Little is known about steamboat activity *to* Jefferson-during the Civil War. Like other river ports on the Red, the coming of the war eventually brought trade to a standstill, but during the early months of the conflict steamboats continued to run as usual ant cotton continued to be shipped to New Orleans. With the establishment of the blockade off the Mississippi River in May 1861, the cotton market essentially ended. Factors and commission merchants in New Orleans informed planters not to send cotton since they could not ship it until the blockade was lifted. With the capture of New Orleans by the Union Navy in 1862, there was no market for the sale of cotton, nor any place to buy other merchandise for trading Although some planters continued to grow cotton, more attention was given to corn, wheat, and vegetables intended for home and local consumption. Even after the fall of New Orleans some trade may have been attempted by the smaller boats carrying goofs between towns ant plantations on the Ret, Ouachita, and Black rivers, but even this eventually ended.

Waterborne military activity on the upper Ret during the Civil War was minimal, much of it consisting of boats operating under contract to the Confederate government carrying supplies and troops. A number of the Jefferson boats were taken over by the Confederacy and served as transports or were leased for the same purpose. Among these were the *Countess, Sallie Robinson, Texas* and the *Comet,* all of which were involved in transporting troops and supplies for the Confederacy on the Mississippi and Red rivers (National Archives venous dates) (Figures 24 and 25). In July 1862, the steamer *Cornie,* then under control of the Confederate government and under the command of E. S. Austin, sailed from Monroe, Louisiana, to Jefferson, Texas. The reason for the trip is unknown, but records indicate that a Charles C Neal was paid $175.00 to pilot the *Cornie* from Shreveport to Jefferson and back to Alexandria (Nadonal Archives 1862). On this trip, the *Cornie* also purchased a variety of supplies from several Shreveport merchants, including lamp chimneys and wicks from the firm of Ball and Dashiell (Figure 26). Although this account of the *Cornie* traveling to Jefferson appears in Civil War records, none of the other listings of boats to Jefferson mention this steamboat.

For a town of such importance, there is surprisingly little information on the nature of Jefferson's commerce, and the little that is available is often suspect. In March 1872, the recorder's office at Jefferson, under an order by the city council, compiled a table of statistics to accompany a memorial to the Federal Congress requesting an appropriation of $250,000 for improvements *to* navigation of the lakes. A special census had just been taken, indicating a population of 7,297 early in 1872, in contrast to the Federal count of 4,190 in 1870. The other statistics, which are given for exports for the period

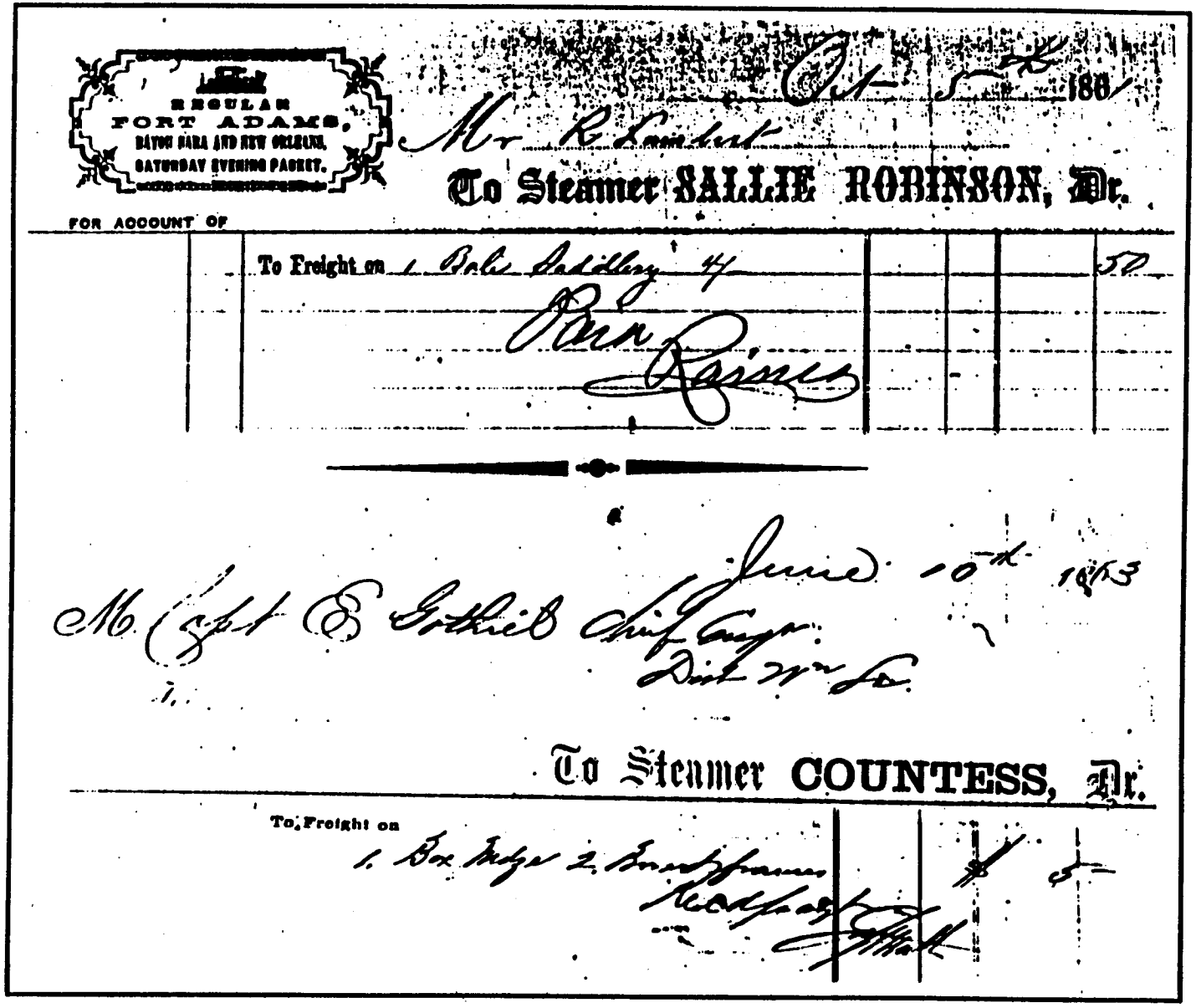


Figure 24. Civil War-era way bills for the *Sallie Robinson* and *Countess* (source: National Archives various dates).

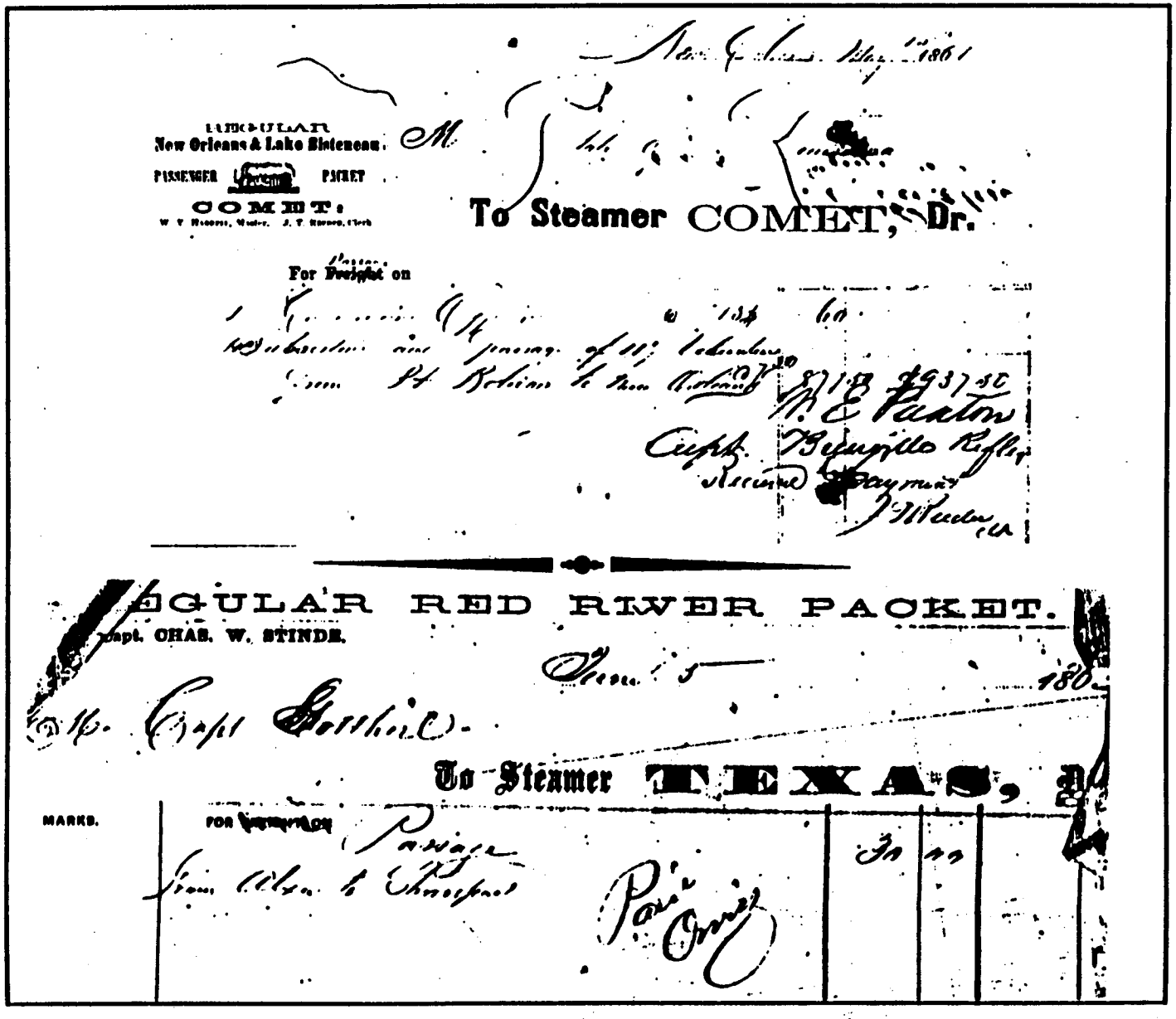
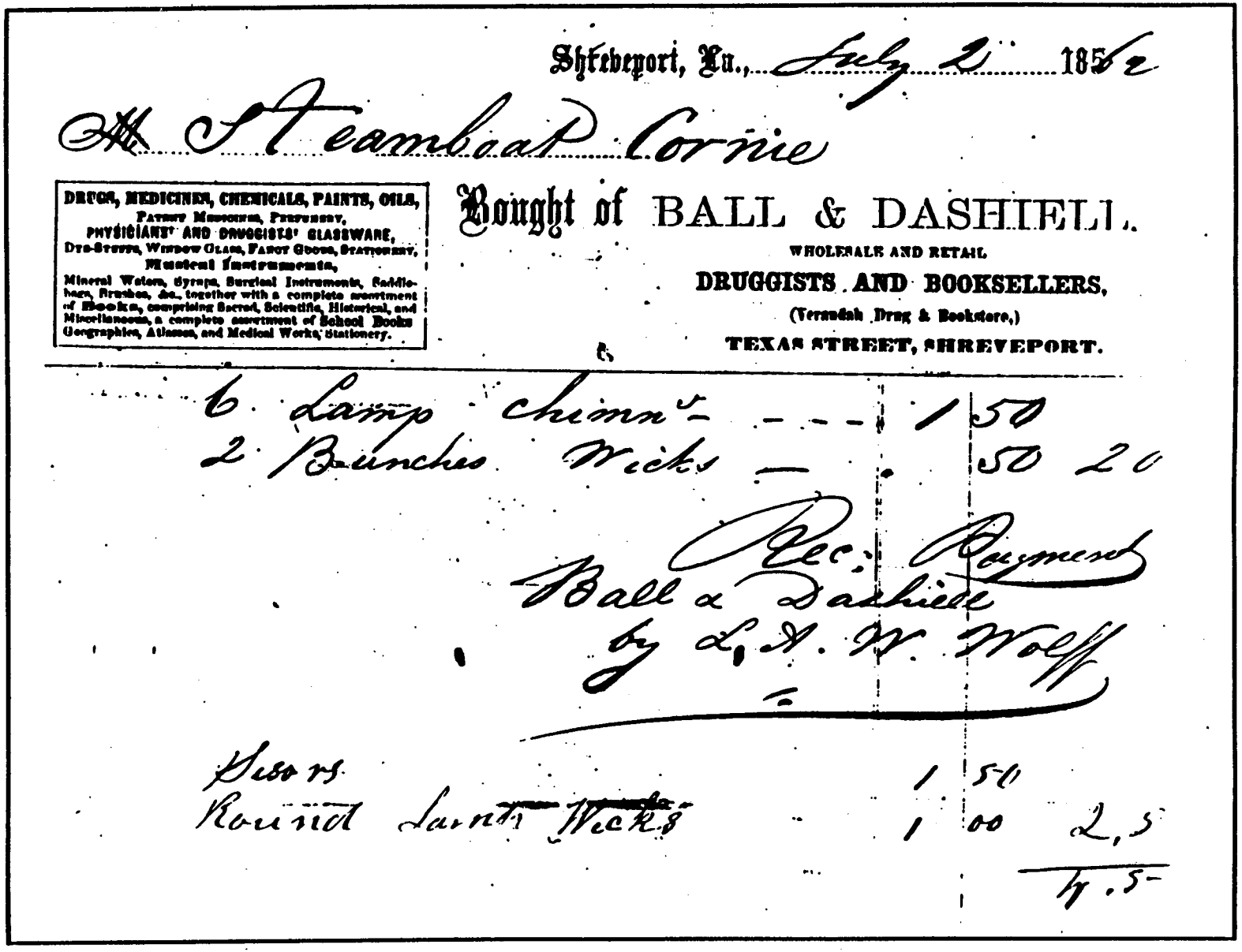


Figure 25. Civil War-era waybills for the Comet and Texas (source: Natianl Archives, various dates).



Shreveport, La., July 2 1862

Steamboat Cornie

DRUGS, MEDICINES, CHEMICALS, PAINTS, OILS,
PATENT MEDICINES, PERFUMERY,
PHYSICIANS' AND DRUGGISTS' GLASSWARE,
DYE-STUFFS, WINDOW GLASS, FANCY GOODS, STATIONERY,
Musical Instruments,
Mineral Waters, Syrups, Surgical Instruments, Saddlebags, Brushes, &c., together with a complete assortment of Books, comprising Sacred, Scientific, Historical, and Miscellaneous, a complete assortment of School Books Geographies, Atlases, and Medical Works, Stationery.

Bought of BALL & DASHIELL.

WHOLESALE AND RETAIL
DRUGGISTS AND BOOKSELLERS,
(Verandah Drug & Bookstore,)
TEXAS STREET, SHREVEPORT.

6 Lamp Chimn's		1 50	
2 Bunches Wicks		50	2 0
Rec. Payment Ball & Dashiell by L. A. W. Wolff			
Dozen		1 50	
Round Lamp Wicks		1 00	2,5
			4.5-

Figure 26. 1864 receipt to steamer Cornie (source: National Archives 1862).

September 1, 1870-September 1, 1871 are as follows:

Cotton (bales)	76,328
Dry hides	84,762
Green hides	18,471
Wool (pounds)	87,623
Peltries	48,210
Bois d'Arc seeds (bushels)	9,721
Cattle	5,381
Lumber (feet)	121,000
Pig iron-amount not ascertained	

These statistics were appended to an 1873 Corps report by Lieut. E.A. Woodruff recommending the removal of the raft on the Red River and improvements to the route to Jefferson, including a lock ant dam on Soda Lake. This proposal actually went balk to 1867, when a lock and dam company was organized in Jefferson to secure all-season transportation, which could only be obtained by resolution of navigation difficulties in the Albany Flats area of Soda Lake.

Apart from Bois d'Arc seed, which was probably not a representative commodity, the other commodity types are probably illustrative of Jefferson's commerce. What is-suspect is the figure of 76,328 bales of cotton and the claimed increase of 75 percent in population in a little over a year. It should be noted that these figures were not independently verified ant did not proceed from a set of regularly collected statistics. Rather, they were prepared to demonstrate to the Federal Congress a sufficient level of commerce to justify a very e xpensive navigation improvement.

The next year, another set of statistics was prepared and appended to the 1874 Carps a! Engineers report on Cypress Bayou. This set was not prepared for a memorial, but rather for a Corps feasibility study of the lock and dam. In this case, the statistics are derives from the 1870 census showing 35,908 bales of cotton produced in a 7-county area, with the assertion that population and cotton production had increased by 40 percent in the intervening period. Interestingly, the assertion is also made that the number of bales of cotton had reached 75,352 in 1869 and -the population of Jefferson had leached 11,000 and that there had been a decline since then from various causes, the principal one being reduction in navigation brought about by removal of the raft. The estate of 11,000 in population is probably indicative of the degree of exaggeration in the commercial statistics, since the Federal census recorded only 4,190 persons the previous year.

These commercial statistics were adopted without question by Cooner (1965) and carried forward by Tarpley (1983). It then became necessary to explain how Jefferson could have experienced an extraordinary increase in population and commercial activity and an even more precipitous decline, all within the period of a few years. Given the conditions under which the statistics were developed, there is no reason to take them at face value. What is beyond question is that Jefferson experienced a decline of commercial activity in the 1870s, because *its* population declined from 4,190 in 1870 *to* 3,260 in 1880, reducing Jefferson's status from sixth *to* fifteenth among Texas towns.

Decline of Steamboat Traffic to Jefferson

Jefferson's commer cial ascendancy lasted only a couple of decades. During the early 1870s, a decline set in that proved to be permanent. What had been a thriving port of national prominence during

the 1850s and 1860s quickly became an infrequently visited *port* and, within a few decades, a mere place of docking for local traffic between Jefferson and the lakes. Capt. Willard's 1893 survey map (Figure 27) shows the neglected harbor area at Jefferson largely silted in, and the text comments that the wharves and buildings that had been on the bayou had been abandoned and bad gone to decay.

Jefferson's commercial decline was directly connected with reductions in the steamboat trade, as *its* ascendency had been. As a consequence, two explanations have been offered for this decline: 1) removal of the Red River raft destroyed the navigability of the route to Jefferson ant thus Jefferson's commercial activity; ant 2) the railroads captured the cotton *trade,* destroying Jefferson's prominence as a part.

Efforts *to* remove the raft were continuous throughout a 40-year period Shreve's initial success in 1838 was followed by major Federal efforts from 1841-1847 (undertaken by CoL S.H Long) ant from 1852-1860 (undertaken by U.S. Agent C.A. Fuller). But the raft was tenacious, and it was not until 1873 that it was permanently removes with explosives by Lieutenant Eugene Woodruff. Woodruff understood quite well that raft removal would destroy the navigability of the route to Jefferson, since it would enable the Red to recapture a portion of diverted flow immediately ant eventually recapture most of the flow by scouring out its sediment-choked bed.

However, Woodruff was also of the opinion that the destruction of the navigability of the route *to* Jefferson would be very gradual since the distributaries that fed into the lake system hat developed strong channels over many decades and actually functioned as alternative courses for the Red. The first signs of the effect of raft removal would be the reduction of water levels on the Jefferson route during low-water periods, since the scoured-out bed of the Red would capture the entire flow. However, this scouring process would take many years, and in the meantime there would be sufficient water for navigation on the route to Jefferson

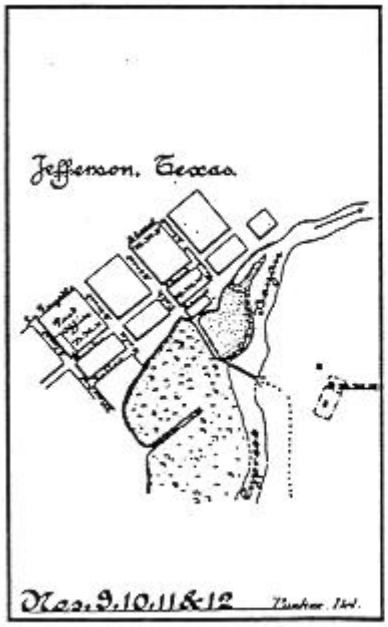


Figure 27. Jefferson in 1893 when the harbor area had been largely silted in (source: U.S. Army Corps of Engineers 1893).

during the higher-water periods, which was the only time that navigation on the Red had been possible during the raft period in any case.

The coincidence of the 1870s onset of Jefferson's commercial decline with raft removal, along with Woodruffs recognition of the eventual harm of raft removal to the navigability of the route to Jefferson, became the main points on which the first thesis explaining the town's decline relied. In order to demonstrate that correlation was indicative of causation, it would be necessary to show that the decline of Jefferson's commerce was correlated with reductions in the navigability of the route to Jefferson.

Unfortunately, there are no complete commercial statistics for Jefferson or for water levels along the route during this period. The route west of Big Willow Pass was protected by sediment deposits that built up at the foot of Caddo Lake during the raft period. Twelvemile Bayou was always capable of receiving backwater from the Red River. The problem area during the period of decline was the same as it had been during the height of navigation. An 1893 Corps report contains the following data on the water surface above Cairo datum for Albany Point, located along Twelvemile Bayou:

Date	**Meters**
October 20, 1867	56.47
February S. 1872	58.63
March 11, 1872	57.81
January 20, 1874	57.38
February 16, 1874	58.57
December 24, 1890	57.06
December 27, 1890	56.76

What these figures show is that Woodruff was correct in his estimates of the effect of raft removal and that at least through 1890, there was no significant change in the higher-water levels at Albany Point. The assistant engineer who compiled these statistics was quick to point out that numerous observers had seen a marked decline in low-water levels at Albany Point, agun vindicating Woodruff. However, nothing can be determined from this meager set of statistics about the possible lengthening of the low-water period, which actually would have reduced the navigation season.

More compelling evidence on the navigability of the route after the removal of the raft is provided by statistics on late steamboat traffic. In 1878, five years after the raft was removed, the Corps of Engineers began a long-term project on improvements to the Red River, concerned primarily with the removal of obstructions, including raft remnants. Beginning in 1890, steamboats traveling to Shreveport and Jefferson are listed. Table 7 extracts the data for steamboats traveling west of Shreveport to and from Jefferson and Mooringsport.

As can be seen from this table, the route to Jefferson was open for most of the year for many years into the 1890s. All of the vessels using the route at this time were sternwheelers. Apparently none were in the New Orleans trade, since all were involved in local traffic, at least for the years enumerated. Most of the freight was downstream, with saw logs constituting the principal commodity. Upstream freights were from New Orleans and were transferred to the smaller Cypress Bayou boas at Shreveport The number of boats operating during this period was modest.

The number of trips was not inconsiderable, but it was far below the estimated 226 arrivals at Jefferson in 1871. However in spite of this decline in traffic, it is obvious that the route to Jefferson was still navigable into the 1890s. What is particularly striking is that it was

Table 7. Steamboats to Points West of Shreveport.

Fiscal Year	Name	Tons	Dimensions	Loaded Draft	Round Trips	From-To	Passengers	Route Navigability
1890	*New Haven*	93	136x24	3'6"	14	Shreveport-Jefferson		Entire year
	Friendly	67	120x27	3'6"	19	Shreveport-Jefferson		
1891	*Nat F. Dortch*	303	164x29	4'	10	Shreveport-Jefferson	60	Dec. 1-June 30
	Friendly			3'	28	Shreveport-Jefferson	130	
1892	*Friendly*			3'	10	Shreveport-Jefferson	40	Feb. 1-June 30
	New Haven			4'	4	Shreveport-Jefferson	15	
	Rosa Bland	149	113x23	3'6"	12	Shreveport-Jefferson	30	
					6	Shreveport-Morringsport	20	
	Blue Wing	112	119x24	3'6"	2	Shreveport-Morringsport	30	
1893	*Rosa Bland*			3'6"	14	Shreveport-Jefferson	61	Nov. 24-June 30
	Nat F. Dortch			3'6"	13	Shreveport-Jefferson	55	
1894	*Rosa Bland*			3'6"	17	Shreveport-Jefferson	65	Nov.-June
1895								
1896	*Rosa Bland*			3'6"	6	Shreveport-Morringsport		
1897	*Rosa Bland*			4'	3	Shreveport-Jefferson	10	
	Nellie L. (with one or more barges)			3'6"	2	Shreveport-Jefferson	0	

navigable even for large boats like the *Nat F. Dortch*, which was 164 feet long and over 300 tons (Table 7).

Since the decline of Jefferson's commerce cannot be fully correlated with a decline in the navigability of the route to Jefferson, the reason for Jefferson's demise must be sought elsewhere. In 1888, a small steamboat of about 125 tons and drawing about four feet loaded made occasional trips from Shreveport into the lakes, bringing back cotton, cotton seed, and saw logs. The owner of the boat is quoted as follows in the Corps report for that year: "Boats could have run to Jefferson ten months in the year, but no business for them to do." Why was there no business in Jefferson for steamboats while the route was still navigable? This question leads to a consideration of the second thesis with respect to the decline of Jefferson's commerce.

The rational for what happened to Jefferson is described at the national level by Hunter (1949), at the regional (Red River) level by Somdal (1935), and at the local (Jefferson) level by Cooner (1965). These three documents indicate that it was the railroads that destroyed Jefferson's steamboat trade, which was the foundation of its prosperity.

Railroads had two major competitive advantages over steamboats: 1) they could go almost anywhere; and 2) they could operate year-round. Steamboats could only go where waterbodies enabled them to go. The transport of commodities from Jefferson into the interior of northeast Texas and the transport of cotton and other goods out of the interior to Jefferson was difficult and time consuming, particularly given the poor quality of roads. Railroads, particularly through the development of spur lines, obviated the need for lengthy transport by wagons. During years of extreme drought, commerce on the Red River could stop altogether and, even during normal years, the route to Jefferson could not be used during the summer. Railroads, on the other hand, were indifferent to weather conditions.

The situation immediately after the removal of the raft is described by Cooner

> The Texas and Pacific railroad completed the Jefferson branch *to* Marshall in the first week of July, 1873 ant immediately began working northeastward toward Texarkana, eastern terminus of the transcontinental route of the Texas and Pacific. Despite a yellow fever epidemic that threatened to stop construction, the Texas and Pacific reached Texarkana in September prior to the onset of the financial crisis of 1873. Before work halted on November 3, 1873, track had been laid eastward from Sherman about ninety-six miles to Brookston, Texas. Construction resumed in 1875, and by 1876 the Texas and Pacific had its track completed from Marshall to Fart Worth via the Southern Pacific route ant Marshall to Sherman via the Jefferson branch and Transcontinental mute. .
>
> By 1876 farmers in northeast Texas could go in any direction and locate a railroad that would transport their crops *to* market with a minimum of delay ant inconvenience. Once serves exclusively by ox-wagons and steamboats, the farmers in northeast Texas were surrounded on four sides by the only *two* all-rail through routes from Texas *to* St. Louis ant other eastern markets. Only a network of tracks within the rectangle formed by the T & P ant the Houston ant Texas Central could have made the situation more convenient for the farmers in northeast Texas [Coomer 1965].

The effect of the railroads was apparently swift and dramatic. An 1877 Corps report on Cypress Bayou gives the following commercial statisdes for Jefferson for the 12 months ended August 31, 18?6: "Cotton receipts, 40,333 bales; of this 25,032 were forwarded to the various m~rkets by railroad, and 15,301 by steamboat." The following comment is given in explanation:

> Nearly the whole of Eastern Texas depended upon the water navigation for its exports ant imports, Jefferson, standing at the head of navigation, being the principal distributing point; but since the construction of the Texas and Pacific Railroad, which runs through the city, a large portion of the business has been diverted from New Orleans to St. Louis.

The picture given for steamboat commerce in the next year's report (1878) was better "The cotton receipts at Jefferson for the year ending August 31, 18?7, was 45,000 bales. Of this, 31,000 were forwarded to market by steamboats, and 14,000 by railroad." However, it is also reported that whereas two steamboats were arriving per week from New Orleans, two or three were arriving from St. Louis.

St Louis quickly overtook New Orleans as the center of the cotton trade, moving from18,518 bales received in Fiscal Year 1870 to 470,000 bales received in Fiscal Year 1880. By 1880, almost all of St. Louis' receipts were by rail, and the 1880 Corps of Engineers report indicates that three-fourths of Jefferson's cotton was being sent to St. Louis by rail.

An 1885 report indicates that Jefferson was only shipping 10-15,000 bales annually, and only a small fraction of this (approximately 500 bales) was being shipped by water. A cotton compress in Jefferson was handling about 60,000 through bales by rail, but this did nothing for water transportation.

Corps of Engineers Navigation Initiatives

As far as the route from Shreveport to Jefferson is concerned, the steamboat era lasted only 30 years, from about 1845 to 1875. Steamboats continued to operate on the route well into the 1890s, but on a much-reduced scale. With the loss of the cotton trade to railroads, Jefferson's position as head of navigation was no longer relevant; and since its commercial strength was based on steamboat activity, Jefferson quickly declined. The cause and consequences are summarized by the *Galveston Daily News* of September 1 1881:

> The building of the Texas and Pacific worked an era of decline for Jefferson which has depreciated her property 70 percent since 1874 forced half her population to move away; left her finest buildings without a te na nt and partially made her the Palmyra of Texas. The railroads. by opening up the-country tributary to Jefferson to other markets instead of increasing the business and trade of the town, cut it-off. Railroad competition for freights had elm facet steamboats out of the bayou, which they now rarely ever ascend as in former days, but stop at Shreveport. The decline of the pace will illustrate the power of railroads.

Throughout the immediate post-raft period, the Corps reports draw a sharp distinction between the issues of navigability ant the decline of Jefferson's commerce. Full responsibility is taken for the decline of the navigability of the route to Jefferson, but the decline of Jefferson's commerce is attributed to the railroads. This could be taken for special pleading were it not for the fact that the Corps was considering various plans for improvement to the route, and raft removal as the cause of the decline of Jefferson's commerce would have provided a much stronger case for Federal intervention.

After Shreve destroyed the raft , it reformed in the approximate place where the head of the raft had been during the final year of Shreve's effort and began extending itself upstream. At first, an overland portage of a few miles at Carolina Bluffs was used to circumvent the raft (Figure 28), but this quickly became closed as the head of the raft moved too far upstream to make portage possible. All traffic was then routed through the Black Bayou-Red Bayou passage opened by Seawell. Eventually, Red Bayou was closed by the raft, and new passages were developed above to the west of the river either through natural channels or artificial cuts.

These passages were extremely dangerous, and insurance rates were high A group of planters in Arkansas developed a private company to remove the raft, but these activities were terminated by the Civil War. A later passage was developed through Poston Lake (Figure 29) on the east side of the river, which crossed over the Red River through the raft, rejoining the old Red Bayou route. However, none of the raft bypasses were very efficient, and interest in removing the raft so that the Red River would be open to navigation was intense.

It has been suggested that Shreveport was a prime mover in efforts to remove the raft so that Jefferson's competitiveness would be destroyed. No evidence has been put forward to substantiate this assertion. More importantly, efforts to teal with the raft began long before Shreveport was founded The impetus for removal throughout the raft period was always from the Territory (and later the State) of Arkansas and the State of Louisiana.

When the raft was finally removed in 1873 by Lieutenant Woodruff, its head had nearly reached the Arkansas line. Woodruff began a preliminary survey of the region in October 1871 that extended into the early part of 1872. Woodruff felt that the difficulties posed by raft removal were greatly exaggerated and that the work could be accomplished in one year. His estimate of the situation turned out to be correct.

Woodruff's plan of action, as outlined in his 1872 preliminary survey report, was to clear the banks and bars above and below the raft of trees, remove the embedded or sunken portions of the raft, ant cut up and remove the floating portions of the raft, which constituted two-thirds of the whole. Axmen would be employed for tree felling, which would need to be done for hundreds of miles above the raft. The raft itself would be removes by specially designed boats, ant explosives would be used on an experimental basis.

Woodruff left New Orleans in August 1872 and traveled to St. Louis, where he purchased the steamboat Aid, which was to serve as a snag puller (figure 30). The Aid was overhauled, and new equipment was installed. Shore parties began attacking the raft on

December 1, and the Aid and a number of craneboats and sawboats arrived in January. Dynamite proved unsuccessful, but nitroglycerine greatly speeded up the work of removing embedded stumps and breaking up the raft By May, a sufficient portion of the raft had been removed to enable a steamboat to reach Red Bayou going upstream This was the first boat in 29 years to take freight past Carolina Bluffs.

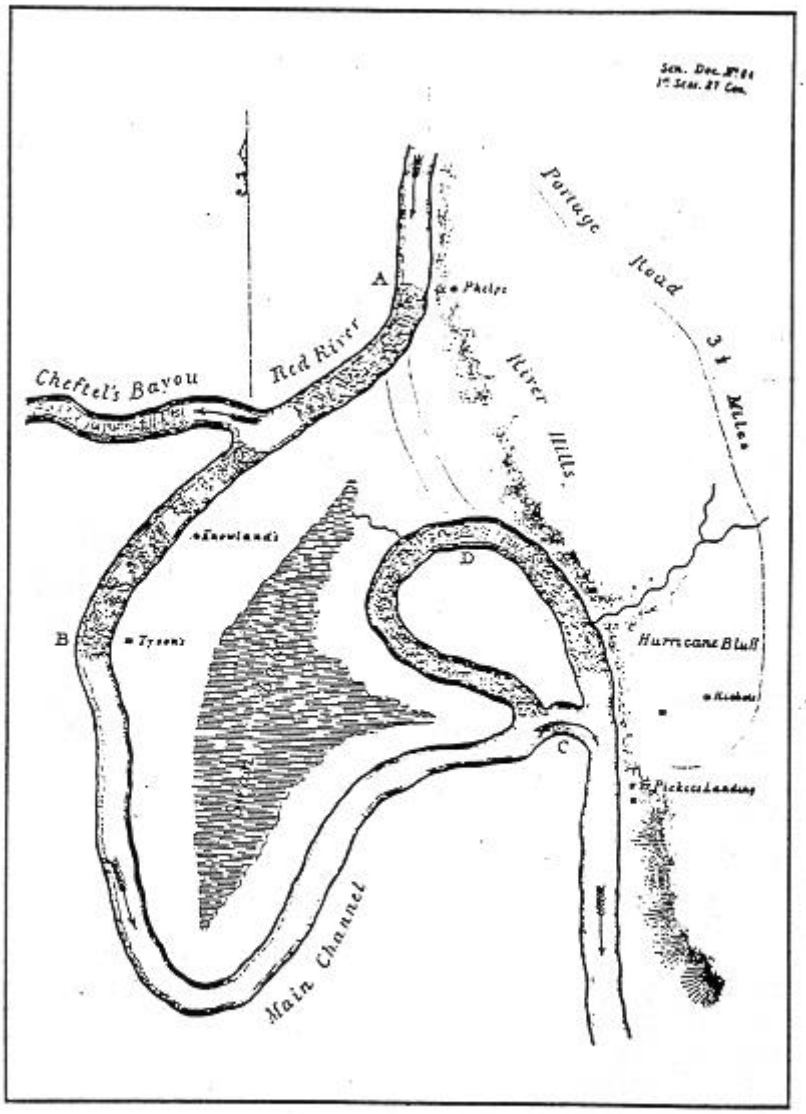


Figure 28. This 1841 map by Col. S.H. Long shows the full extent of the raft a few years after it reformed and the overland portage that was used to by pass the obstruction. The cutoff contains raft materials stored by Shreve.

Although there was some sickness among the workers, the effort continued through the summer. In July, the bank clearing efforts began and work continued on raft removal Lieut. Woodruff joined the Howard Society in Shreveport in its efforts to assist yellow fever victims during the great epidemic of 1873 and himself died of yellow fever on the last day of September and was buried in the Oakland Cemetery. The work continued under his brother George, and the last section of raft was removed on November 27.

When Congress appropriated the funds for Woodruff's survey, it was aware that raft removal would reduce water levels in the Soda *L* ake area, thereby affecting the navigation mute to Jefferson. This is why Woodruffs survey was in two parts, one scaling with the Red River above Shreveport and the other dealing with the region west of Shreveport. Although Woodruff was in favor of raft removal to increase the navigability of the Red River, he was concerned about the long-tam effects on the route to Jefferson and stated in his survey report that "The injury to the Jefferson navigation will be gradually increased, and justice to the people of that section will require that some means be taken to remedy it..

Woodruff was not speaking about Jefferson's commerce, but rather about the fact of navigability. If the Federal Government damaged the navigability of a stream, it had a duty to

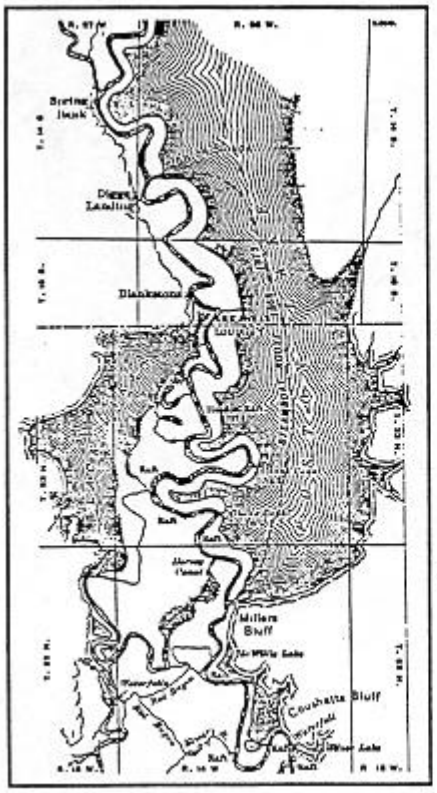


Figure 29. The steamboat route through Poston Lake showing the head of the raft in 1873 a few miles below the Arkansas line. This map was prepared by Arthur Veatch for his 1906 report on the basis of Woodruff's survey maps.

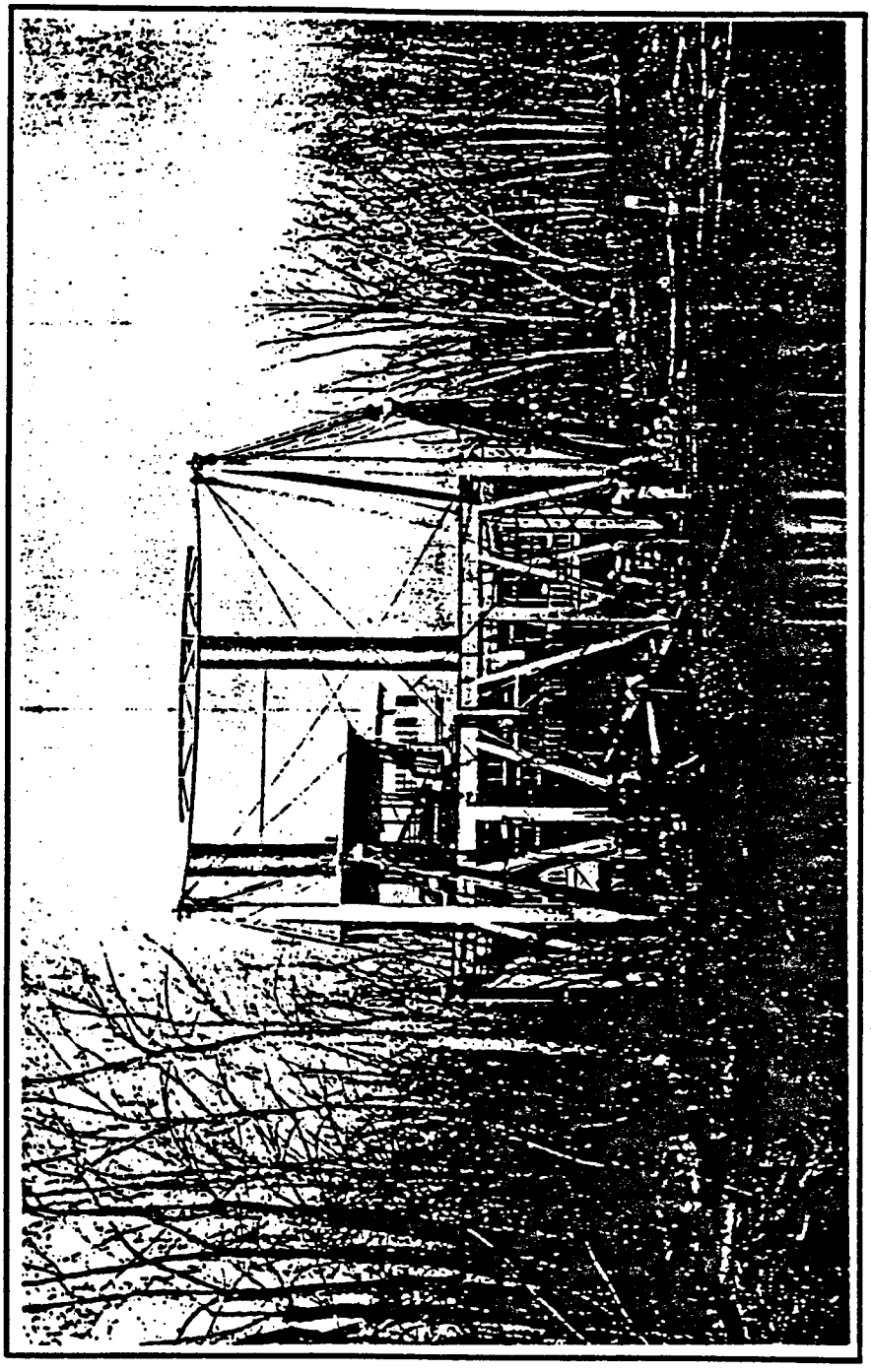


Figure 30. The steamer *Aid* removing a portion of the Great Raft on the Red River in 1873. This photograph is one of an album of 107 by R.B. Talfor.

restore it. To rectify the damage that would caused by raft removal, Woodruff recommended improvements to the existing channel between Shreveport and Jefferson and a lock and dam at the lower end of Soda Lake. The first recommendation gave rise to the Cypress Bayou and Waterway project, and the second initiated a series of reports over the next 120 years leading directly into the Shreveport to Daingerfield Study.

The Cypress Bayou and Waterway project, which lasted from 1872 to 1918, was primarily a dredging and obstruction removal effort. During the 46 years of this project, 37,000 charnel stumps and logs were destroyed, 36,000 leaning trees and shore snags were removed, and 100,000 square yards of willows and brush were cut. Seven major dredged cuts were made involving the removal of 348,000 cubic yards of earth. All of these, including the well-known Government Ditch at the head of Caddo Lake, are shown on Bergland's 1885 map (Figure 31).

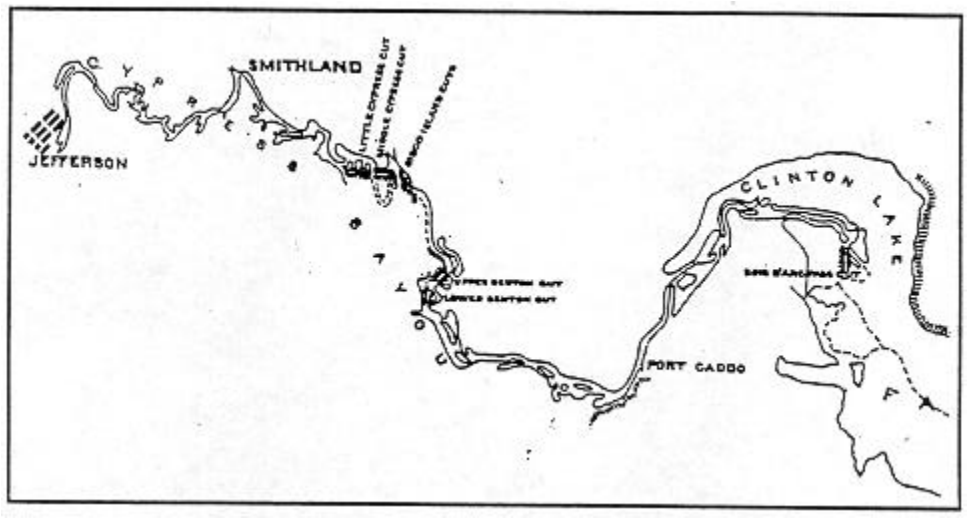


Figure 31. A portion of Capt. Eric Bergland'. 1885 map showing the several dredged cats produced as part of the Cypress Bayou and Waterway Project

The remnants of this project are still observable. . The cuts can be seen on a modem topographic map ant are favored by boat traffic in Cypress Bayou and on Caddo Lake (Figure 32). Close observers traveling through these cuts (particularly the ones on Cypress Bayou) will notice that the banks along the cuts are formed by two layers of earth, one of which is the original land surface, and the other of which is the overlying dredged material Channel markers were erected and signboards were posted along the preferred route. Many of these are still in existence as "crossroads" signs on old pilings, although whatever information they may have contained has been obliterated by time.

The efforts to improve Cypress Bayou and the lakes continued long after the steamboat era came to an end. Although the improvements undoubtedly benefited the reduced traffic that extended into the 1890s, the numerous appropriations by Congress reflected the efforts of Jefferson to not only restore the full navigability of the route, but also to improve the route above its historic capacity by securing year-round navigation The key element in this plan of action, whidch was also the second part of

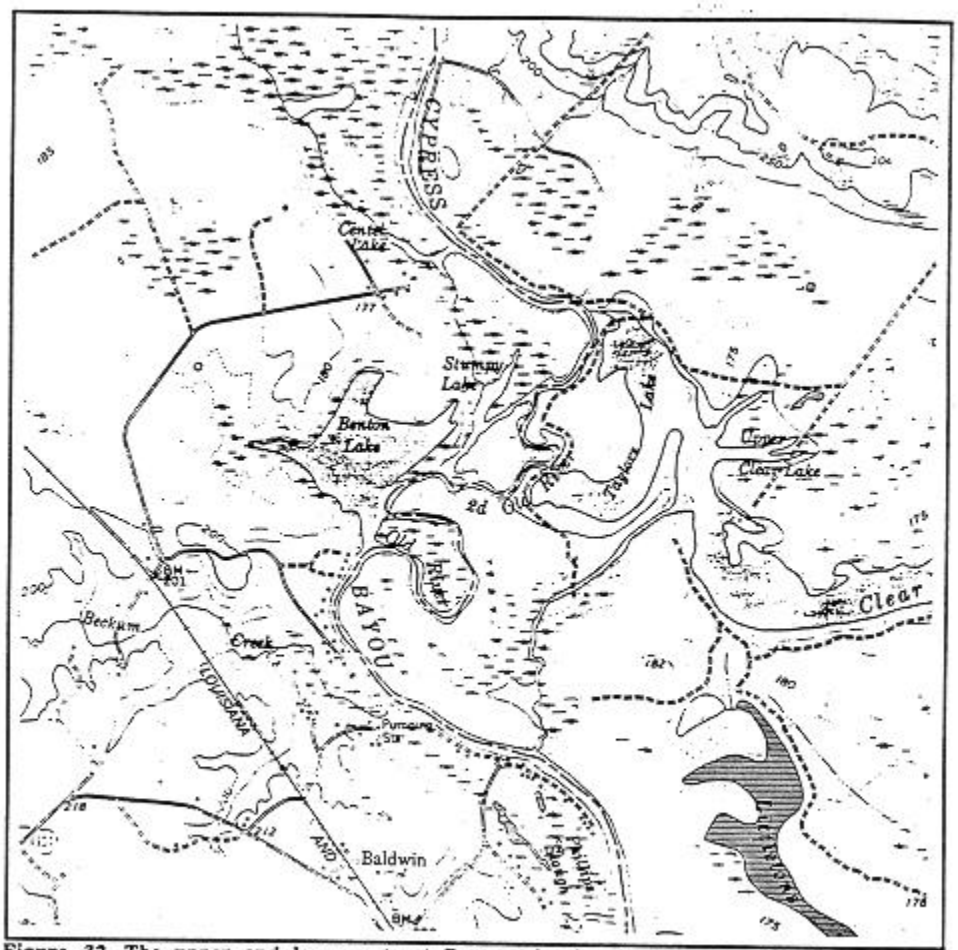


Figure 32. The upper and lower cuts at Benton showing the loops in the channel of Cypress Bayou labeled "Old River" that were bypassed.

Woodruff's was to resolve the navigation difficulties in the Soda Lake area through structural measures.

Woodruff's recommendation for a lock and dam at the foot of Soda Lake foundered on technical difficulties and costs. It was followed by a number of related proposals that were addressed in the nine major survey reports that were produced between 1874 and 1913 (U.S. Army Corps of Engineers various years);

1. Capt. C.W. Howell, 1874. *Improvement of Cypress Bayou and Construction of Dams and Dredging at the Foot of Soda Lake, Texas.*

2. Capt. Eric Bergland, 1885.. *Examination of Cypress Bayou and the Lakes Between Jefferson,, Texas, and Shreveport, Louisiana.*

3. Capt. J.H. Willard, 1890. *Special Report on Improvement of Cypress Bayou and the Lakes Between Jefferson, Texas,, and Shreveport, Louisiana.*

4. Capt. J.H. Willard,, 1893. *Survey of Cypress Bayou and the Lakes Between Jefferson, Tex.,., and Shreveport, La., to Ascertain if Navigation can be Materially and Permanently Improved by the Construction of Locks and Dams and the Probable Cost Thereof.*

S. Capt. C.L.. Potter, 1904. *Preliminary Examination of Cypress Bayou, Texas,, Including the Lakes Between Jefferson, Texas,, and Red River, Louisiana.*

6. Capt. W.P. Wooten, 1905. *Survey of Cypress Bayou and the Channels Connecting Shreveport, La., with Jefferson, Tex..*

7. Capt. W P. Wooten, 1907. *Preliminary Examination of Caddo Lake, Texas and Louisiana (Part of a Waterway Connecting Jefferson, Tex.,., with Shreveport, La.) with a view to the Construction of a Dam at the Foot Thereof.*

8. Capt. A.F. Waldron, 1909. *Survey of Jefferson-Shreveport Waterway, Texas..*

9. Capt. T.H. Jackson,, 1913. *Preliminary Examination for Lock in the Proposed Dam at root of Caddo Lake, La. and Tex.*

The recommendations made in these reports rain into technical difficulties, and as Jefferson's commerce progressively declined, it was impossible to provide an economic justification for the high expense of the necessary structural measures. Although the Cypress Bayou and Waterway project continued, the later Corps reports recognized it as an exercise in futility, since improvements to Cypress Bayou and the lakes were fruitless in the absence of a structural resolution to the long-standing problem on Soda Lake, which increased in severity as the results of raft removal were felt.

When Woodruff wrote his survey report, he predicted that the effects of raft removal on the route to Jefferson would be gradual; but he also stated that the Red River distributaries that provided sustenance to the lakes should never be closet, since this would destroy the route to Jefferson. The immediate, and progressive, effect of raft removal was to lower the low-water levels on Soda Lake,. Higher water levels in the Soda Lake area were diminished to some degree, reducing the navigation season, but the effect was not dramatic because the distributaries were strong contenders for Red River water. The portion of the route between the foot of Caddo Lake and Jefferson was -little affected because water levels in that area were sustained by the Cypress Bayou drainage. Cypress Bayou remained strong and seep, ant the reduction of water levels on Caddo Lake was not sufficient to hinder navigation.

The decisive element in the destruction of the navigability of the route was the closure of the distributaries above Shreveport and the erection of levees along the Red River. This was a joint project by the Corps of Engineers, which was interested in increasing the navigability of the Red River, and by the Louisiana State Board of Engineers and the Caddo Levee District, which were interested in land reclamation on the west side of the river. This effort began in 1891, increased in intensity from 1892-1895, and was completed by 1900. Cottonwood

Bayou, which was the first distributary to supply water to the lakes west of Shreveport, was the last to be closed.

The decline of the waterbodies and associated navigation was discussed in numerous Corps reports. The relative contribution of raft removal versus outlet closure ant levee building in this decline was judged in favor of the latter, as in the last major survey of the waterway, which was conducted by Capt. T.H. Jackson of the Corps in 1913 (who uses the term "levee" to include outlet closures):

> A prevalent error appears *to* be *that* communication by water to Jefferson, Tex., ceased upon removal of the Red River raft. Steamboat men state that boats continued to run to Jefferson Tex., far several years after removal of this obstruction in Red River and ceased only when, owing to levee building, the supply of water to the Shreveport-Jefferson waterway was cut off by these measures of land reclamation [U S. Army Corps of Engineers 1913].

Most of the outlets were closed by 1897. Soda Lake became impassable except during isolated months of very high water when backwater flooding from the Ret River into Twelvemile Bayou enabled the area to be cr ossed During low-water periods, flow through the area practically ceased. This is why the year 1897 marked the cessation of regular steamboat activity to Jefferson.

The last two commercial steamboats to travel between Shreveport and Jefferson on a regular basis were the *Nellie L.* and the *Rosa Bland.* In Fiscal Year 1897, the *Rosa Bland* made three round trips on the route, and the *Nellie L.* made two. The commodities reported were as follows: cotton seed (200 tons); provisions (122 tons); cotton seed meal (100 tons); cotton (90 tons); miscellaneous (40 tons); grain (25 tons); and hides and skins (1 ton). The *Rosa Bland* also carried ten passengers. In that year, Jefferson received 7,000 bales of cotton and shipped 6,925 bales. However, only 355 bales were shipped by the water route; the rest were shipped by rail

Nothing is known about the *Nellie L.* other than that it was moving one or more barges in this final year. The *Rosa Bland* was a modest sternwheel vessel built in Little Rock, Arkansas, in 1889. It sank and was lost on March 15, 1898, at Douglas Landing on the Red River while carrying 54 bales of cotton and 1,100 sacks of cotton seed to Shreveport (WPA 1938). - -

There was no navigation reported between Shreveport and Jefferson from Fiscal Year 1897, when the *Rosa Bland and Nellie L.* made five trips, until Fiscal Year 1904. During that period, a 15-ton gasoline vessel named the *Nellie G.* made a number of trips between Jefferson and the lakes carrying cypress logs, lumber, provisions, grain, telephone poles, and cord wood. In Fiscal Year 1904, Cypress Bayou between Jefferson and the lakes was reported navigable all year for light draft boars, but only in the latter part of June was a boat able to ascend from Shreveport.

The distinction of making the last commercial steamboat run between Shreveport and Jefferson goes to the 71-ton sternwheeler Anna Tardy, which carried seven passengers to Jefferson in June 1904. It was built and owned by Capt. Frank Tardy of Evansville, Indiana, and was transferred to the Red River trade in 1901 under the ownership of WE. Cravens and Frank Knutson. It apparently became trapped upstream at Jefferson because it is reported to have made only one-half of a round trip in 1904, when the route was reported navigable only in the latter part of June, and is listed as engaged in trade between Jefferson and local points down to Caddo Lake in Fiscal Year 1905. It was snagged on the Red River in November 1905, suffering a total loss.

The Oil Period

The final phase of navigation in the area west of Shreveport was dominated by the emergence of the oil industry. Oil was first found in the Caddo Lake area in March 1905. Although more than a million barrels were produced in 1909, it was not until 1910 that the first well to produce substantial quantities of oil was drilled. The first offshore drilling began on Caddo Lake in 1911.

After the *Anna Tardy* made the last commercial steamboat run between Shreveport and Jefferson in 1904, there was little other than local traffic for the next few years along the route. This traffic was constituted primarily by gasoline-powered craft that towed barges carrying such commodities as livestock, pilings, shingles, railroad ties, and feed and provisions. The oil industry is first mentioned m a Corps report for Fiscal Year 1910, when two gasoline vessels with barges were reported carrying railroad ties, livestock, lumber, and 1,435 short tons of oil well supplies.

There was an explosion of activity in Fiscal Year 1911 when 10 gasoline vessels and 10 barges were reported carrying the following commodities:

Angle Irons	15 Tons
Boilers	150,000 Pounds
Brick	10 Tons
Casing	1,517,488 Pounds
Cement	344,000 Pounds
Crude Oil	1,000 Barrels
Drilling rigs	430,000 Pounds
Grain	2,5000 Bushels
Gravel	75 Tons
Hay	47 Tons
Ice	2,000 Pounds
Livestock	224 Head
Lumber	1,363,609 Feet
Machinery	937 Tons
Miscellaneous	285 Tons
Oil Well Supplies	280 Tons
Piling	200 (Number)
Pipe	4,889 Tons
Pipe Fittings	111 Tons
Provisions	56 Tons
Pumps	24,000 Pounds
Rivets	10 Tons
Rods	2,100 Pounds
Sand	30 Tons
Tank Steel	662,000 Pounds
Tubing	9,200 Pounds

The report notes that this is an incomplete list because many of the oil companies did not give an account of their activities. Commerce during the first year of oil-related navigation was restricted to the transport of men and materials across James Bayou, although it was quickly expanded to include transport to the offshore platforms. During Fiscal Year 1913, 4,784 passengers were transported The only major change in the commodity listings during the second decade of the twentieth century was the tremendous expansion of the number of wood pilings carried, which exceeded 10,000 in Fiscal Year 1915, indicating that this was the high point of offshore drilling.

Representative vessels, which were all gasoline launches and gasoline towboats with barges, arelisted in the report for Fiscal Year 1912:

1. *Willie*—with barges No. 1 and 2.
2. *Lillie Lucile*—draft 17 inches, with barge.
3. Two unnamed launches and barges.
4. *Poco No. 1*—draft 18 in, net tonnage 400 lbs, foreman's runabout.
5. *Poco No. 4*—draft 24 in, net tonnage 1,800 lbs, foreman's runabout.
6. *Poco No. 5*—draft 36 in, net tonnage 1,500 lbs, towboat.
7. *Poco No. 6*—draft 28 in, net tonnage 1,000 lbs, runabout.
8. *Texas*–barge, draft 36 in, net tonnage 20 tons.
9. *Leonard, Dan Walker, Emer H., Victor, Chloe* and barges.
10. *Petrolia, Rastus, Gulf, Mabel S., O.K., No. 2, Scout, Dan Patch, Gypsy* (and four barges).
11. *Ferro* and barges.
12. *Sun, Edna.*

It is generally believed that the original dam at the foot of Caddo L ake which was built in 1914, owes its existence to the oil industry. The traditional story is that the oil industry was experiencing difficulties getting workboats to offshore rigs because of low water levels on the lake and proposed that the lake either be drained or reconstituted This cannot have been the case, since the darn was proposed in December 1905 and authorized in June 1910, well before offshore drilling began. The dam owed its existence to navigation interests in Jefferson who were dealing with a new threat to the route between Shreveport and Jefferson.

When the raft was removed in 1873, all of the lakes began to recede, and this process was dramatically accelerated by the closure of the distributaries and the levying of the Red River in the 1890s. Although Caddo Lake receded somewhat, it was protected from extinction by an earthen darn of Red River sediments at its foot, which had obliterated the old channel of Cypress Bayou underneath the lake.

The other lakes were not so fortunate. Clear, Shifttail, Soda, and Cross lakes eventually disappeared. The only reminder of the vast Soda Lake today is the Soda Lake Wildlife Management Area Cross Lake became a cotton field and was recreated in the 1920s as a water supply reservoir for Shreveport. Although water continued to occupy the old lake areas during extreme high-water periods, the fate of the lakes is shown by Veatch (1906) in a comparison of the situation in 1838 and 1901 (Figure 33).

The falls shown in Veatch's map designated the headward recession of Twelvemile Bayou, which was eating into the sediments deposited in the Soda Lake area and draining the lane. The falls were moving upstream at a rate of one-tenth of a kilometer per year and would have reached Caddo Lake by about 1945, eating through the earthen darn and draining the lake, so that all that would be left would be the original non-navigable channel of Cypress Bayou.

The phenomenon was recognized in 1903 by Capt. J.M. DeWare, President of the Jefferson Navigation Company, who conducted a brief survey of the falls with Congressman Morris Sheppard in September. A hearing was conducted by the Committee on Rivers and Harbors in April 1904, and a survey of the problem area, conducted by Capt. W. P. Wooten, reported that the best solution to the problem would be the construction of a lock and dam at the foot of Caddo Lake and dredging downstream. But he was unable to recommend such a project because of its high cost ($525,000) and low benefits.

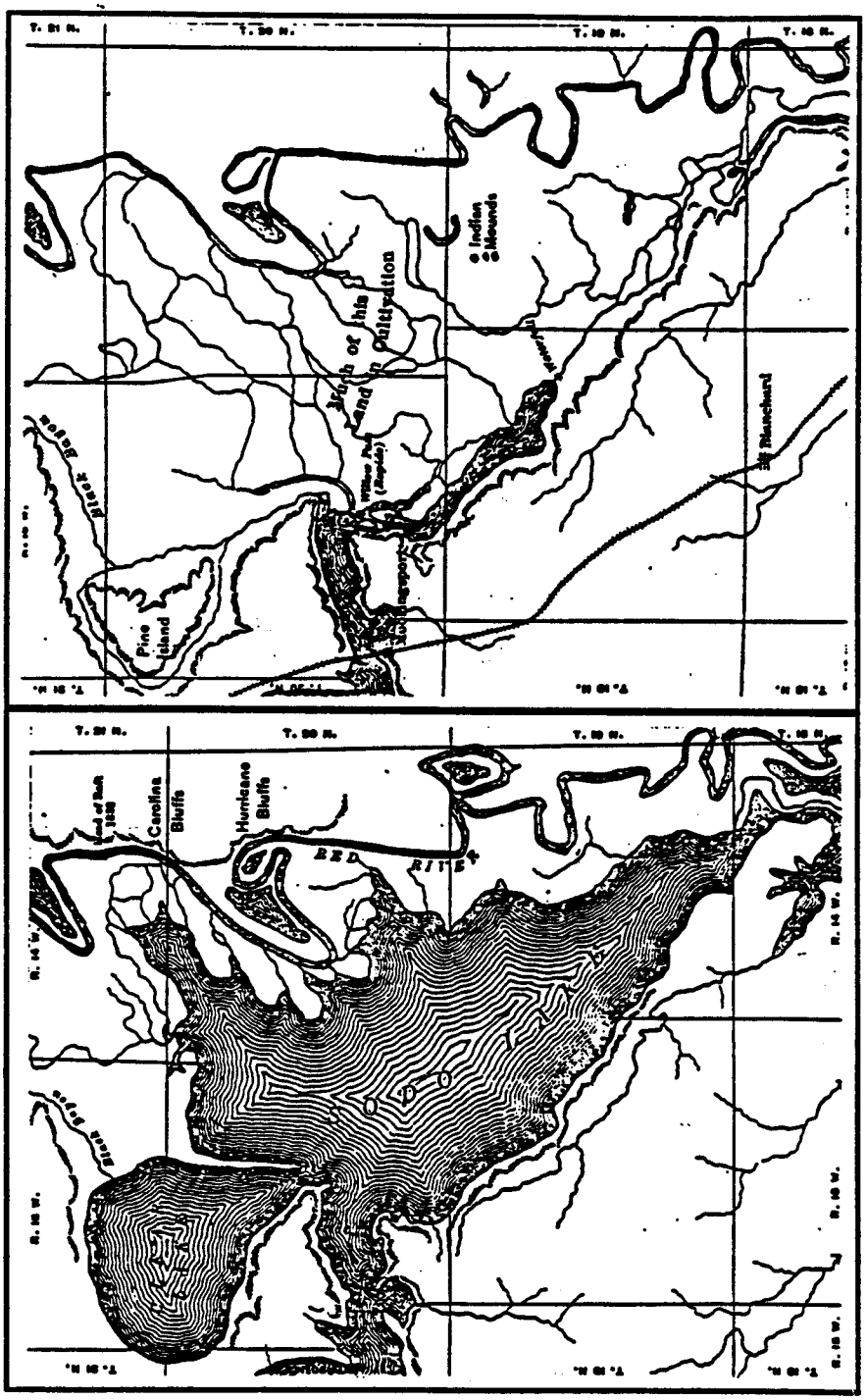


Figure 33. Author Veatch's representation of the Sodo Lake complex in 1839, when the head of the raft was at Carolina Bluffs, and 1901 when a headcut (marked waterfall) was eating its way upstream on twelvemile Bayou, draining the lakes.